

Energy-Related Air Quality Research

Program Opportunity Notice/Request for Proposal (PON) 4895

\$4,000,000 Available

NYSERDA reserves the right to extend and/or add funding to the Solicitation should other program funding sources become available.

Proposals Due: January 18, 2022 by 3:00 PM Eastern Time*

The New York State Energy Research and Development Authority (NYSERDA) supports research to improve the scientific and technical foundation for addressing key energy policy-relevant questions related to air quality and health effects research. In 2017 NYSERDA supported the “New York City (NYC) Metro Area Energy & Air Quality Workshop,” attended by air quality planners, researchers, non-profits, and industry to identify key research needs. Following the workshop, an intensive field campaign, the “Long Island Sound Tropospheric Ozone Study (LISTOS),” was coordinated by the Northeast States for Coordinated Air Use Management (NESCAUM). This effort included numerous state, federal, and academic researchers (<https://www.nescaum.org/documents/listos#participants>). This Program Opportunity Notice will build on the LISTOS efforts and other research needs identified below. The targeted research categories for this PON are listed below.

Category	Available Funds	Per Project Cap
A. Ozone Chemistry Dynamics in NYC- Long Island Region	\$1,500,000	\$500,000
B. Utilization of Satellite and other Remote Sensing Products for Air Quality Characterization at Fine Spatial Scales and Improved Air Quality Modeling	\$1,000,000	\$500,000
C. Methane and Co-Pollutant Emissions	\$1,500,000	\$500,000

A total of \$4,000,000 is available for projects. If funds for a category are not exhausted, NYSERDA reserves the right to allocate the remaining funds to another category. NYSERDA anticipates making multiple awards addressing multiple targeted research categories that result in peer-reviewed research publications in leading scientific journals. The primary audience for this PON includes researchers at academic or research institutions actively performing atmospheric, environmental, or energy research in NYS. Partnering with state, local and federal researchers or key industry partners is also encouraged. Early career researchers (less than 10 years conducting research as principal investigator) are especially encouraged to propose. Project durations are expected to be in the range of one (1) to four (4) years. Total funds available may not be sufficient to fund all proposals received. Cost-sharing by proposers of at least 25% is required. Leveraging of other research funding is strongly encouraged. In-kind cost-sharing is acceptable. NYSERDA may fund selected proposals in phases or assign a Project Advisory Committee. NYSERDA reserves the right to build teams between selected contractors and stakeholders and/or other supported research to maximize the value of the research effort and funding.

Proposal Submission: Online submission is preferable. Proposers may submit Word, Excel, PDF or zip files (file formats include: csv, doc, docx, gif, jpeg, jpg, pdf, png, ppt, pptx, pps, ppsx, tif, txt, xls, xlsx, and zip). However, proposals must be submitted as a single file, inclusive of all supporting documents. Individual files should be 100MB or less in file size. Proposal PDFs should be searchable and should be created by direct conversion from MS Word, or other conversion utility. Files should not be scanned. For ease of identification, all electronic files must be named using the proposer's entity name in the title of the document. NYSDERDA will also accept proposals by mail or hand-delivery if online submission is not possible. For detailed instructions on how to submit a proposal (online or paper submission), click the link "[Application Instructions and Portal Training Guide](#) [PDF]" located in the "[Current Opportunities](#)" section of NYSDERDA's website.

No communication intended to influence this procurement is permitted except by contacting Ellen Burkhard – primary designated contact at (518) 862-1090, ext. 3332 or air.quality.research@nyserda.ny.gov or Gregory Lampman – secondary contact (Designated Contact) at (518) 862-1090, ext. 3372. If you have contractual questions concerning this solicitation, contact Nancy Marucci (Designated Contact) at (518) 862-1090, ext. 3335 or NancySolicitations@nyserda.ny.gov. Contacting anyone other than the Designated Contacts (either directly by the proposer or indirectly through a lobbyist or other person acting on the proposer's behalf) in an attempt to influence the procurement: (1) may result in a proposer being deemed a non-responsible offeror, and (2) may result in the proposer not being awarded a contract.

*** ALL PROPOSALS MUST BE RECEIVED BY 3:00 PM EASTERN TIME ON THE DATE NOTED ABOVE. Late, faxed, or emailed proposals will not be accepted.** Incomplete proposals may be subject to disqualification. It is the proposer's responsibility to ensure that all pages have been included in the proposal. Please note: for online submission, there are required questions that you will have to answer in addition to uploading attachments and you should allot at least 60 minutes to enter/submit proposals. The online proposal system closes promptly at 3pm Eastern Time, proposals or files in process or attempted edits or submission at any time after 3pm Eastern Time on the date above, will not be accepted. If changes are made to this solicitation, notification will be posted on the "[Current Opportunities](#)" section of NYSDERDA's website (<https://www.nyserda.ny.gov/Funding-Opportunities/Current-Funding-Opportunities.aspx>).

I. Introduction

The major goals of NYSDERDA's Environmental Research Program are to increase understanding and awareness of the environmental impacts of current and emerging energy options, provide a scientific and technical foundation for formulating effective, equitable, energy-related environmental policies and resource management practices, and build scientific capabilities within New York State (NYS).

There have been many changes in the past few years with respect to energy and environmental policy and energy markets. While there is uncertainty in some areas such as federal policies, states such as New York have developed policies that are buoyed by market trends in renewable energy, and emerging technologies.

Energy policies in NYS and elsewhere are expected to change how and where electricity is generated, how buildings are heated and cooled, and how people and goods are transported. Many of these transformations will result in changes in the emissions profiles of energy sources and their proximity to where people live and work. Some technologies, such as zero-emissions technologies (energy efficiency, solar, wind, hydroelectric power, and electric vehicles) will result in significant emissions reductions. However, given the intermittency of solar and wind energy, they may require some level of backup by other generation sources or energy storage. Similarly, electric vehicles, while non-emitting during operation, do require charging from the grid. Where and when charging takes place will also alter emissions profiles. Combustion technologies are similarly complex. Finally, energy storage technologies will allow for more strategic dispatch of both renewable and conventional energy.

New York is embarking on a comprehensive energy strategy that includes initiatives presented in the State Energy Plan), Clean Energy Fund (CEF), Clean Energy Standard (CES), and the Climate Leadership and Community Protection Act (CLCPA).

Together they have the following goals to be accomplished:

- 85% reduction in greenhouse gases (GHG) by 2050;
- 70% of energy generation from renewable energy sources by 2030 and 100% carbon neutral by 2040;
- 9,000 MW of Offshore Wind by 2035
- 3,000 MW of Energy Storage by 2030
- 23% decrease in energy consumption in buildings
- 100% passenger cars and truck sales to be zero emissions by 2035
- 100% medium- and heavy-duty truck sales to be zero emissions by 2045

Together, these policy objectives, technical innovations in energy technology and management, market changes, and emerging scientific capabilities will present opportunities and potential challenges for air quality in NYS. This Environmental Research Program area will support research to improve the scientific and technical foundation for the key policy-relevant research needs described below.

Proposers are requested to consider these energy and environmental objectives and scientific needs when responding to the targeted research categories in this PON.

Proposals will be considered responsive to this solicitation only if they address one of the targeted research categories described below. Preferred projects are those that (in no particular order): provide data in a form that is useable by policy analysts and policymakers; utilize research/analytical capabilities in New York State; are comprised of interdisciplinary research teams including atmospheric, environmental, health and social scientists, and public policy analysts; and leverage out-of-State, federal, or other resources to address critical environmental issues in New York State. Projects should support research that helps improve the scientific and technological foundation to address key policy-relevant questions related to energy, and air quality research. They should build upon or coordinate with existing efforts, and not duplicate work by others. When appropriate, selected projects may be asked to work with a Project Advisory Committee assigned by NYSERDA. NYSERDA reserves the right to build teams between selected contractors and stakeholders and/or other supported research to maximize the value of the research effort and funding. Depending on the final Statement of Work for any selected proposal, NYSERDA reserves the right to require additional contracting terms, such as additional insurance to meet industry standards, or other similar requirements.

II. Program Requirements — Targeted Research Categories

A. Ozone Chemistry Dynamics in the Greater NYC- Long Island Region

Problem Statement

LISTOS was launched in the summer of 2018 to better understand the complex chemistry and transport of pollution in the region with a special focus on Long Island Sound. This area experiences some of the highest ozone (O₃) concentrations in the Eastern US and doesn't meet the 2015 National Ambient Air Quality Standards NAAQS. LISTOS involved several state and federal agencies along with university research groups in a multi-faceted coordinated campaign, with measurements obtained on land, in air, at sea, and from space

(<https://www.nescaum.org/documents/listos>). NESCAUM will continue LISTOS efforts through the summer of 2023.

The National Oceanic and Atmospheric Administration (NOAA) will be undertaking the Atmospheric Emissions and Reactions Observed from Megacities to Marine Areas (AEROMMA) field campaign in summer 2023 to improve understanding of emissions and chemical reactions that affect air quality and climate in megacities and marine environments in the U.S. This large research initiative will include aircraft measurements of the New York City metro area urban plume (<https://csl.noaa.gov/projects/aeromma/>). Additionally, the Greater New York Oxidant, Trace gas, Halogen and Aerosol Airborne Mission (GOTHAAM) and Coastal Urban Plume Dynamics Study (CUPiDS) will be taking place in 2023 and provide additional aircraft measurements; (https://www.nsf.gov/awardsearch/showAward?AWD_ID=2023574&HistoricalAwards=false) and (<https://csl.noaa.gov/projects/aeromma/cupids/>). Ground-based monitoring for speciated volatile organic compounds (VOCs) is being conducted by NYSDEC on Staten Island, the Bronx, and Flax Pond on Long Island.

This targeted research category is intended to compliment the aircraft and field studies identified above and focuses on research that improves source apportionment, source identification, emissions inventories and air quality models for the Greater NYC region including areas up- and down-wind.

Research Focus

Proposals should address one or more of the following:

1. Ambient speciated VOC, Volatile Chemical Products (VCP), particulate matter (PM), nitrogen oxides (NO_x), peroxyacetyl nitrate (PAN), O₃ and other pollutant measurements for source identification, source apportionment, and improvement of emissions inventories and air quality modeling for O₃ and PM.

There is interest in obtaining greater speciated information on ambient VOCs, VCPs, reactive biogenic VOCs and other chemical species within the NYC urban region and upwind with improved vertical and horizontal resolution. In addition to ozone impacts, VOC/VCP emissions are major contributors to air toxic exposure and formation of secondary aerosols (i.e., fine particulate matter) in the NYC region. From a policy-relevant perspective, it would be important to understand VOC/VCP speciation better and improve the performance of air quality modeling simulations in order to better identify specific emission sources and chemical products rather than pursuing a “mass-based” approach that may not effectively address the most important (e.g., reactive) species.

2. Source measurements of speciated VOCs, PM, and NO_x emissions
Speciation monitoring of VOCs in ambient air is being conducted in Staten Island by NYSDEC but direct stack or vent emissions are needed for fuels, fuel storage facilities, and other commercial or industrial sources of VOC or VCPs to improve source apportionment, emissions inventories, and photochemical models. Projects should be designed using methods to obtain necessary information to successfully improve NYS, regional, and national emissions inventories.
3. Over-water measurements near and at the surface in western and/or central Long Island Sound and/or the New York-New Jersey Bight
Ship-based, remote-sensing (ex. LIDAR), or other platform measurements of VOCs, VCPs, NO_x, PM, ozone, and meteorology are needed in western Long Island Sound to provide in situ measurements of the NYC urban plume as it enters the Sound that can be compared to air quality modeling. Vertical profiles within the lowest 50 meters are not measurable by aircraft but this lowest layer in the western Sound may provide important

chemical speciation and vertical structure information for model comparisons. In addition to western Long Island Sound, the chemical evolution of the plume is of interest in central Long Island Sound as it is transported farther away from NYC. Over-water pollution and dynamics in the New York-New Jersey Bight is also of interest as transport in this area can bring polluted air masses into and across Long Island from the south. Project field campaign must include the 2023 ozone season to facilitate collaboration of vertical and spatial fine-scale measurements and model evaluation with the multi-program O₃ dynamics intensive.

Proposals focused on field monitoring should include multisensory-data analysis from different instruments, which improve vertical, horizontal, and temporal resolution of air pollutants such as O₃, NO_x, VOCs, PM and air toxics. Detailed meteorological data may be obtained from several stations in the region including the NYS Mesonet, research LIDARS, and buoys. Projects are expected to lead to a better understanding of ozone chemistry dynamics, secondary particle formation, improved VOC and NO_x inventories and improved air quality models leading to effective ozone and PM reduction strategies. Proposals should consider the dynamics of contributing sectors (ex. power, transportation, building heating/cooling sectors), changes in source types/fuels, and resultant emissions. Remote sensing data such as that measured by satellite or remote sensing instruments on roof-tops, marine vessels, vehicles, aircraft, or other platforms can help to provide horizontal and vertical pollutant distributions, identify sources, improve emission inventories, and evaluate modeled distributions of trace gases or PM where monitors are lacking. Validation measurements, such as those at long-term monitoring sites, should also be performed. Models should have fine-scale spatial and temporal resolution (ex. 1.3 km grid size) and include model evaluation (O₃, PM_{2.5}, air toxics, co-pollutants). Model inputs should reflect up-to-date information on activities and fuels used in NYC and the region rather than default values in the National Emissions Inventory where appropriate.

B. Utilization of Satellite and other Remote Sensing Products for Air Quality Characterization at Fine Spatial Scales, Source Identification, Emissions Estimates, and Improved Air Quality Modeling

Problem Statement

In order to address pressing air quality research needs, it is necessary to continue to better observe ambient air pollutants such as O₃, its precursors, and GHGs [both carbon dioxide (CO₂) and non-CO₂]. A new generation of satellite technologies offer opportunities for improved horizontal, vertical, and temporal observations. For example, the European Space Agency Tropospheric Monitoring Instrument (TROPOMI) instrument provides global daily coverage for NO₂, formaldehyde, and carbon monoxide (CO) at 3.5x5.5 km² resolution; and for methane at 5.5x7 km² resolution. (<http://www.tropomi.eu/>). The National Aeronautics and Space Administration (NASA) Tropospheric Emissions: Monitoring Pollution (TEMPO) geostationary instrument will be launched in 2022 and will provide hourly data over North America with 2 (N/S) x 4 km² spatial resolution for ozone (including sensitivity to ozone in the lowermost troposphere), NO₂, and formaldehyde; (<http://tempo.si.edu/overview.html>).

The data from these satellites will improve upon the spatial resolution of existing space-based air quality products. These advances will improve the capacity for satellite products to improve understanding of ozone, and precursor transport and formation mechanisms that cannot be captured by ambient monitoring networks. These satellites will also improve GHG observations and inventory development. Finally, there is a continued need for an integrated air quality observation system that coherently brings together meteorological and air monitoring measurements including satellite and other remote sensing data and 3-dimensional chemical transport models for better air quality forecasts.

Research Focus

Research should validate satellite or other remote sensing products and use them to characterize air quality at fine scale, identify sources, improve emissions estimates, evaluate emissions inventories, and validate fine-scale air quality models over NYS and the region. Funding may support TEMPO early adopters' work. Ground-based, mobile, balloon, aircraft, light detection and ranging (LIDAR), Tropospheric Ozone LIDAR Network (TOLNET), NYS meteorological network (MESONET), or other network measurements may be used to validate satellite measurements. The 2023 multi-program ozone dynamics intensive may facilitate collaboration of vertical and spatial fine-scale measurements and model evaluation. Offshore wind electricity production is anticipated to begin in 2023 as well so multi-year studies may begin to document changes during the clean energy transition.

C. Methane and Co-Pollutant Emissions

Problem Statement

In 2018, a National Academy of Sciences (NAS) Committee developed a report on anthropogenic methane emissions in the U.S. [funded by the Environmental Protection Agency (EPA), Department of Energy (DOE), NOAA, and NASA) with a focus to improve measurement, monitoring, reporting, and development of methane inventories. In 2019, NYS's Climate Leadership and Community Protection Act (CLCPA) established new requirements for GHG emission limits and goals to address climate change. In 2020, 6 NYCRR Part 496, "Statewide GHG Emissions Limits," determined the limits on GHG emissions in 2030 and 2050 as a percentage of 1990 emissions, per the requirements of the CLCPA (<https://www.dec.ny.gov/regulations/121052.html>). The New York State Department of Environmental Conservation (NYSDEC) has conducted outreach for the Annual Statewide GHG Emissions report (<https://www.dec.ny.gov/energy/99223.html>) and is preparing the first annual report to be issued in 2021. NYSERDA has supported several projects toward these objectives that are ongoing including establishing a long-term methane monitoring network, supporting source characterization studies for methane, other GHGs and co-pollutants, and inverse modeling.

The US EPA has proposed New Source Performance Standards and Emissions Guidelines to reduce methane and other harmful pollution from the oil and natural gas industry (<https://www.epa.gov/controlling-air-pollution-oil-and-natural-gas-industry/actions-and-notice-about-oil-and-natural-gas-regulations>). Additionally, NYSDEC has proposed regulatory requirements for methane monitoring for the energy sectors (<https://www.dec.ny.gov/regulations/122829.html>) and is anticipated to do so for the waste sector. Technology comparisons are needed for continuous monitoring technologies for methane and co-pollutants (ethane, VOCs, hydrogen sulfide) for oil and gas compressor stations, storage sites, waste treatment facilities and landfills to inform NYSDEC monitoring requirements. These may be for use on-site, at fence line or up- or down-wind sites.

Research Focus

Research should focus on improving the methane inventory for NYS through monitoring, source characterization, and inverse modeling. This may include continuing existing stationary methane (and other GHG and co-pollutant) measurements, adding additional stationary sites to obtain improved geographic coverage and higher altitude measurements, and characterizing source types. Aircraft or remote sensing studies could also identify plumes and use them for quantification of point or area sources. Top-down studies (e.g., aircraft, satellites) could be used to reconcile top-down and bottom-up approaches.

Continuous monitoring technology comparisons must evaluate instrument accuracy, precision, detection limit, linear dynamic range, and sensitivity to temperature, relative humidity, or other ambient conditions. Individual sources may need to be monitored repeatedly or continuously to characterize seasonality and operational variations in methane production. The waste and oil and gas sectors are of particular importance.

III. Proposal Requirements for Targeted Research Categories

Proposers must submit a complete proposal for the targeted research category (Category A, B, or C) that they are proposing to. A proposal may be submitted to only one targeted research category and the proposer must choose the category that most closely matches the proposal topic. The proposals must be in either PDF or MS Word format. Proposals must be submitted as two separate files. One file shall be the budget and the other file shall be inclusive of the proposal narrative (Parts 1-3) and all other supporting documents. Proposal PDFs should be searchable and should be created by direct conversion from MS Word, or other conversion utility, rather than scanning. For ease of identification, all electronic files must be named using the proposer's entity name in the title of the document. Proposals may be submitted electronically by following the link for electronic submissions found on this PON's webpage, which is located in the ["Current Opportunities"](#) section of NYSERDA's website.

Proposals should not be excessively long or submitted in an elaborate format that includes expensive binders or graphics. Unnecessary attachments beyond those sufficient to present a complete, comprehensive, and effective response will not influence the evaluation of the proposal. Each page of the proposal should state the name of the proposer, "PON 4895" and the page number.

Proposals should follow the format below and provide sufficient and succinct information to complete the required descriptions and answer the questions described in the Proposal Evaluation criteria listed in Section IV. The preferred length of each proposal section is shown. **Proposals are subject to return without evaluation if more than 20 pages are submitted** (not including Budget Forms (Attachment A), one-page letters of commitment, and resumes), or if a font smaller than 11 point is used. **Proposers may contact Ellen Burkhard at 518-862-1090 ext. 3332 before preparing a proposal to discuss proposal requirements.**

Proposal Format & Submission: Proposals must be submitted as two files. One file shall be the budget and the other file shall be inclusive of the proposal narrative (Parts 1-3) and all other supporting documents. The proposal file should be 100MB or less in file size. A proposal may be submitted to only one targeted research category and the proposer must choose the category that most closely matches the proposal topic.

PART 1: Project Summary (Seven pages total)

- A. **Project Summary and Policy Relevance:** Summarize the proposed project and its policy implications. Clearly indicate how each of the main goals of the project relates to one of the targeted research categories. Describe any energy, air quality, or public health policy issues this research would potentially inform. Identify how the project would result in improved emissions inventories or air quality models. Detail the project goals and major objectives. Explain how the project results will address, in a timely manner, a problem/opportunity facing New York State with respect to pollutants associated with the generation, transport, use, storage or distribution of energy. Coordination with other national, state or local cooperative environmental research initiatives is desirable. Explain how the project will make use of other relevant data and coordinate with other initiatives where possible to provide maximum value to New York State. (Three pages)
- B. **Summary of Project Methods:** Summarize the proposed project methods and overall research design. Explain why the equipment, models, methods, and other aspects of the work are expected to be capable of meeting objectives. Describe the extent to which these have been accepted by the scientific community and policy making organizations, or otherwise demonstrated to be valid. The methods must

be outlined in detail and clearly designed to meet the project objectives including spatial and temporal resolution. The methodology for statistical analysis of the data from all aspects of the project must be clearly presented. Describe how data will be made available and archived for independent researchers. Identify likely scientific manuscript topics and potential journals for submittal. Identify measures of success. (Four pages)

PART 2: Statement of Work (Nine pages total + Budget documents not included in page count)

- A. Tasks: The Statement of Work is the primary contractual document that identifies the task sequence, deliverables, and provides the basis for progress payments. It is an action document, divided by the individual tasks or procedures required to accomplish the project objectives. Each task should be identified with a description of its objective, how it will be performed, and the anticipated deliverables and milestones. As appropriate, tasks should include a clear description of general operating procedures, quality control and quality assurance measures, analytical procedures, data analysis, evaluation, and statistical analysis to be used to optimize the quality of the data and project results. (Nine pages)
- B. Information Transfer and Dissemination Plan: The Statement of work must include a task for reporting and information transfer. The following baseline reporting and information transfer work will be required for each project and should be considered in allocating resources for this task: presentations at meetings and completing monthly or quarterly progress reports including a substantive description of project progress and of successful data capture and quality control, a comprehensive final technical report, and a minimum of two (2) articles for submission to peer-reviewed journals to be published open source (or otherwise freely available). In addition, each principal investigator will be required to prepare a short paper summarizing the usefulness of their research findings for environmental policy formulation. Principal investigators are strongly encouraged to collaborate with social scientists/policy analysts in preparing these policy papers and a technical editor for all final documents. Findings-to-date shall be presented to NYSERDA's Environmental Research Program Advisory Group and invited guests at annual meetings (in Albany, NY) arranged by NYSERDA staff. Some projects may be assigned a Project Advisory Committee by NYSERDA. NYSERDA reserves the right to build teams between selected contractors and stakeholders and/or other supported research to maximize the value of the research effort and funding.

Additional methods of information transfer and reporting may be proposed for involving pertinent policy makers or regulators and other target audience representatives during the project and for using the anticipated project results to achieve projected public benefits. Efforts to increase access to, or use of data collected, is encouraged. Outreach or education to the scientific and regulatory communities about project findings is also encouraged. (One Page)

- C. Master Schedule: Complete a schedule showing start and completion times for all major tasks, in terms of months after project initiation. Include major milestones and meetings, tests, demonstrations, reports, and other key deliverables. The Schedule should be realistic and reflect the nature of environmental research. (One Page)
- D. Budget Form: Complete the attached Budget Form (Attachment A) for the entire project, including any in-kind contributions and other cost-sharing. The degree of cost-sharing will be considered in the evaluation of proposals. **Cost-sharing of at least 25% is required.** Leveraging of other research funding is preferable. In-kind cost-sharing is acceptable. Proposers must provide sufficient detail in the supporting schedule for each cost element, its description, and amount to justify the budget and allow for

evaluation. Publication costs, including open access fees should be included in the budget. (Not included in page count).

PART 3: Supporting Documentation (Four pages total, + supporting documents not included in the page count)

A. Management Plan and Qualifications:

- Organizational Chart - Prepare an organizational chart listing all key personnel by name. The role for each of the team members must be clearly described in the proposal. Identify whether the Principal Investigator is an early career investigator (10 years or less conducting research as Principal Investigator). Include any subcontractors, postdoctoral or graduate students if known, and other sponsors involved in the project, showing their roles and responsibilities. (One page)
- Tasking Chart - Prepare a tasking chart, describing approximately in hours or days the effort contributed by each of the key personnel to each task and the total effort. (One page)
- Related Projects – Provide a sample of related projects that have been undertaken by the proposer and/or subcontractors. For each project, provide a brief summary, describing its title, scope, funding amount and client contact numbers. NYSERDA may contact listed clients. (One page)

- B. Resumes:** - Submit relevant portions of resumes of all key project personnel, including those of proposed subcontractors, and postdoctoral or graduate students if known. Include education and experience that are relevant to the proposed work. (One page each - not included in page count) **Letters of Commitment or Support:** If you are relying on other organizations or businesses to do work, provide services, equipment, or data, or share in the non-NYSERDA cost, include a letter from that organization or business describing their commitment. If the use of unpublished data from other researchers is necessary for the project to be successful, letters of support showing the availability of these data must be included.

Absence of letters of commitment or support will be interpreted as the proposer not having commitment/support from those parties. (One page each - not included in page count)

- C. Cost Sharing:** A cost-share of at least 25% of the total project cost is required. Cost sharing can be from the proposer, other team members, and other government or private sources. Contributions of direct labor (for which the laborer is paid as an employee) and purchased materials may be considered "cash" contributions. Unpaid labor, indirect labor, or other general overhead may be considered "in-kind" contributions. NYSERDA will not pay for efforts that have already been undertaken. The proposer or proposing team cannot claim as cost-share any expenses that have already been incurred. If applicable, show the cost-sharing plan in the following format (expand table as needed, maximum 1 page).

	Cash	In-Kind Contribution	Total
NYSERDA	\$	\$	\$
Proposer	\$	\$	\$
Others (list individually)	\$	\$	\$
Total	\$	\$	\$

Attach supporting documentation to support indirect cost (overhead) rate(s) included in your proposal as follows:

- Describe the basis for the rates proposed (i.e., based on prior period actual results; based on projections; based on federal government or other independently approved rates).
- If rate(s) is approved by an independent organization, such as the federal government, provide a copy of such approval.
- If rate(s) is based on estimated costs or prior period actual results, include calculations to support proposed rate(s). Calculation should provide enough information for NYSERDA to evaluate and confirm that the rate(s) are consistent with generally accepted accounting principles for indirect costs.
- Provide a detailed budget for the overall project.
- Include a detailed budget for each of the subcontractors/consultants that justifies the amount proposed.

NYSERDA reserves the right to audit any indirect rate presented in the proposal and to make adjustment for such difference. Requests for financial statements or other needed financial information may be made if deemed necessary.

Annual Metrics Reports – If awarded, the proposer will be required to submit to NYSERDA's Project Manager, on an annual basis, a prepared analysis and summary of metrics addressing the anticipated energy, environmental and economic benefits that are realized by the project. All estimates shall reference credible sources and estimating procedures, and all assumptions shall be documented. Publications, presentations, posters, and briefings are common metrics for projects supported by this PON. Reporting shall commence the first calendar year after the contract is executed. Reports shall be submitted by January 31st for the previous calendar years activities (i.e. reporting period). Please see Attachment E: Sample Metrics Reporting Guides for the metrics that you will be expected to provide and the reporting duration. NYSERDA may decline to contract with awardees that are delinquent with respect to metrics reporting for any previous or active NYSERDA agreement.

IV. Proposal Evaluation

Proposals that meet Proposal requirements will be reviewed by a Technical Scoring Committee using the Evaluation Criteria below. **If an investigator(s) identified in a proposal is an investigator on one (1) or more current or previous NYSERDA-funded projects, performance on these projects will be considered in the evaluation of the current proposal.**

A. Technical Evaluation Criteria: (listed in order of importance)

- Usefulness and Value of Project Results** – Does the project indicate how each of the main goals of the project relate to the targeted research category? How useful are the project results expected to be in validating or improving New York State or national policies, regulations, impact assessments, monitoring technology requirements, source identification, source characterization, emissions inventories, air quality models, or mitigation methods? Will the results be available in a timely manner? To what extent will the project use and integrate other relevant data and coordinate with other research/monitoring initiatives (e.g., with field sampling and data analysis) to provide maximum value to New York State?

- b. **Soundness of Project Methods and Research Design/Statement of Work and Schedule** – How suitable are the proposed project methods and overall research design for meeting the project objectives and yielding accepted results? How comprehensive, realistic, and explicit is the Statement of Work with respect to the project objectives and proposal requirements? Are specific measurable targets of success provided where applicable? Are the Tasks reasonable and clearly described? Are the methods outlined in detail and clearly designed to meet the project objectives? Are the deliverables for each task clearly presented? Is there a coherent plan for synthesizing the data set?
 - c. **Management Plan and Qualifications** – How well has the proposer organized a management plan and a project team with the necessary educational, technical, operations, technology transfer, financing, and administrative experience for successfully completing the project? Is the Principal Investigator a researcher at an academic or research institution actively performing research in NYS? Is the Principal Investigator an early-career researcher? Are all roles and responsibilities clearly defined? Does the team include partnerships with other research groups? Has an interdisciplinary team been assembled including environmental scientists, social scientists/public policy analysts, and technologists, as appropriate? How many of the team members are located in New York State? Have letters of support demonstrating the availability of data and agreement to participate been included?
 - d. **Communication of Results** – How promising is the reporting and information transfer plan for successfully using project results to realize the potential benefits of the project (ex. improved emissions inventories or air quality models)? Has the proposer described a comprehensive final technical report, and articles for submission to peer-reviewed journals? Does the proposer have a well-crafted plan and partnerships to prepare a short paper summarizing the usefulness of their research findings for environmental and or energy policy formulation and identified an interested audience? Has the proposer included a review of the draft final report by a technical editor? Has the proposer planned to present results to NYSERDA's Environmental Research Program Advisory Group and invited guests at annual meetings (in Albany, NY) arranged by NYSERDA staff? Has the proposer acknowledged the project may be assigned a Project Advisory Committee by NYSERDA?
 - e. **Cost Criteria** – How justifiable and reasonable are the overall costs compared to the expected usefulness of the project results and the level of effort and duration of the project? How justified and reasonable are the proposer's cost allocations and co-funding contributions (cash, in-kind services, etc.)? To what degree does the proposal include meaningful cost-sharing from other key organizations important for the success of the project? Is there a detailed budget provided for the overall project including sufficient detail in the supporting schedule for each cost element, its description, and amount to justify the budget? Does the budget include open-source publication costs for a minimum of two manuscripts in peer-reviewed scientific journals?
- B. Other Considerations: Projects will also be reviewed to determine whether they reflect the overall mission of NYSERDA, including:
- The balance among projects of long- and short-term benefits and risk/reward relationships, and whether similar projects are presently or have been previously funded.
 - The general distribution of projects of diverse topics related to program goals.
 - The ability of the project to build scientific research capacity in NYS.
 - The ways in which the proposed project fits with currently funded projects.
 - The ease of measuring project success in quantifiable ways.

- If applicable, the responsiveness of the proposer in conducting other NYSERDA-funded work.

II. GENERAL CONDITIONS

Proprietary Information – Careful consideration should be given before confidential information is submitted to NYSERDA as part of your proposal. Review should include whether it is critical for evaluating a proposal, and whether general, non-confidential information, may be adequate for review purposes. The NYS Freedom of Information Law, Public Officers law, Article 6, provides for public access to information NYSERDA possesses. Public Officers Law, Section 87(2)(d) provides for exceptions to disclosure for records or portions thereof that "are trade secrets or are submitted to an agency by a commercial enterprise or derived from information obtained from a commercial enterprise and which if disclosed would cause substantial injury to the competitive position of the subject enterprise." Information submitted to NYSERDA that the proposer wishes to have treated as proprietary, and confidential trade secret information, should be identified and labeled "Confidential" or "Proprietary" on each page at the time of disclosure. This information should include a written request to except it from disclosure, including a written statement of the reasons why the information should be excepted. See Public Officers Law, Section 89(5) and the procedures set forth in 21 NYCRR Part 501 <https://www.nyserda.ny.gov/About/-/media/Files/About/Contact/NYSERDA-Regulations.ashx>. However, NYSERDA cannot guarantee the confidentiality of any information submitted.

Omnibus Procurement Act of 1992 – It is the policy of New York State to maximize opportunities for the participation of New York State business enterprises, including minority- and women-owned business enterprises, as bidders, subcontractors, and suppliers on its procurement Agreements.

Information on the availability of New York subcontractors and suppliers is available from:

Empire State Development
Division for Small Business
625 Broadway
Albany, NY 12207

A directory of certified minority- and women-owned business enterprises is available from:

Empire State Development
Minority and Women's Business Development Division
625 Broadway
Albany, NY 12207

State Finance Law sections 139-j and 139-k – NYSERDA is required to comply with State Finance Law sections 139-j and 139-k. These provisions contain procurement lobbying requirements which can be found at <https://online.ogs.ny.gov/legal/lobbyinglawfaq/default.aspx>. Proposers are required to answer questions during proposal submission, which will include making required certification under the State Finance Law and to disclose any Prior Findings of Non-Responsibility (this includes a disclosure statement regarding whether the proposer has been found non-responsible under section 139-j of the State Finance Law within the previous four years).

Tax Law Section 5-a – NYSERDA is required to comply with the provisions of Tax Law Section 5-a, which requires a prospective contractor, prior to entering an agreement with NYSERDA having a value in excess of \$100,000, to certify to the Department of Taxation and Finance (the "Department") whether the contractor, its affiliates, its subcontractors and the affiliates of its subcontractors have registered with the Department to collect New York State and local sales and compensating use taxes. The Department has created a form to allow a prospective

contractor to readily make such certification. See, ST-220-TD (available at http://www.tax.ny.gov/pdf/current_forms/st/st220td_fill_in.pdf). Prior to contracting with NYSERDA, the prospective contractor must also certify to NYSERDA whether it has filed such certification with the Department. The Department has created a second form that must be completed by a prospective contractor prior to contracting and filed with NYSERDA. See, ST-220-CA (available at http://www.tax.ny.gov/pdf/current_forms/st/st220ca_fill_in.pdf). The Department has developed guidance for contractors which is available at <http://www.tax.ny.gov/pdf/publications/sales/pub223.pdf>.

Contract Award – NYSERDA anticipates making multiple awards under this solicitation. NYSERDA anticipates a contract duration of one to three years, unless NYSERDA management determines a different structure is more efficient based upon proposals received. A contract may be awarded based on initial applications without discussion, or following limited discussion or negotiations pertaining to the Statement of Work. Each proposal should be submitted using the most favorable cost and technical terms. NYSERDA may request additional data or material to support applications. NYSERDA will use the Sample Agreement to contract successful proposals. NYSERDA may at its discretion elect to extend and/or add funds to any project funded through this solicitation. NYSERDA reserves the right to limit any negotiations to exceptions to standard terms and conditions in the Sample Agreement to those specifically identified in the checklist questions. Proposers should keep in mind that acceptance of all standard terms and conditions will generally result in a more expedited contracting process. NYSERDA expects to notify proposers in approximately 12 weeks from the proposal due date whether your proposal has been selected to receive an award. NYSERDA may decline to contract with awardees that are delinquent with respect to any obligation under any previous or active NYSERDA agreement.

Accessibility Requirements – If awardees from this solicitation will be posting anything on the web, or if the awardee will produce a final report that NYSERDA will post to the web, the following language must be included. NYSERDA requires contractors producing content intended to be posted to the Web to adhere to New York State's Accessibility Policy. This includes, but is not limited to, deliverables such as: documents (PDF, Microsoft Word, Microsoft Excel, etc.), audio (.mp3, .wav, etc.), video (.mp4, .mpg, .avi, etc.), graphics (.jpg, .png, etc.), web pages (.html, .aspx, etc.), and other multimedia and streaming media content. For more information, see [NYSERDA's Accessibility Requirements](#).

Limitation – This solicitation does not commit NYSERDA to award a contract, pay any costs incurred in preparing a proposal, or to procure or contract for services or supplies. NYSERDA reserves the right to accept or reject any or all proposals received, to negotiate with all qualified sources, or to cancel in part or in its entirety the solicitation when it is in NYSERDA's best interest. NYSERDA reserves the right to reject proposals based on the nature and number of any exceptions taken to the standard terms and conditions of the Sample Agreement. NYSERDA reserves the right to disqualify proposers based upon the results of a background check into publicly available information and the presence of a material possibility of any reputational or legal risk in making of the award.

Disclosure Requirement – The proposer shall disclose any indictment for any alleged felony, or any conviction for a felony within the past five years, under the laws of the United States or any state or territory of the United States and shall describe circumstances for each. When a proposer is an association, partnership, corporation, or other organization, this disclosure requirement includes the organization and its officers, partners, and directors or members of any similarly governing body. If an indictment or conviction should come to the attention of NYSERDA after the award of a contract, NYSERDA may exercise its stop-work right pending further investigation, or terminate the agreement; the contractor may be subject to penalties for violation of any law which may apply in the particular circumstances. Proposers must also disclose if they have ever been debarred or suspended by any agency of the U.S. Government or the New York State Department of Labor.

III. Attachments:

Attachment A – Budget Form

Attachment B – Sample Agreement

Attachment C – 2021 Energy-Related Air Quality Publication List

Attachment D – 2021 Energy-Related Air Quality Project List

Attachment E – Information Dissemination Metrics